

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

AWAPATENT AB  
P.O. Box 45086  
S-104 30 Stockholm  
SUÈDEDate of mailing (day/month/year)  
07 June 2000 (07.06.00)Applicant's or agent's file reference  
2008128

## IMPORTANT NOTIFICATION

International application No.  
PCT/SE99/01799International filing date (day/month/year)  
07 October 1999 (07.10.99)

## 1. The following indications appeared on record concerning:

☒ the applicant ☒ the inventor ☐ the agent ☐ the common representative

## Name and Address

BOHM, Christer  
Varpholmsgränd 32  
S-127 46 Skärholmen  
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

## Name and Address

BOHM, Christer  
Skurusundsvägen 40  
S-131 46 Nacka  
Sweden

State of Nationality

SE

State of Residence

SE

Telephone No.

Facsimile No.

Teleprinter No.

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

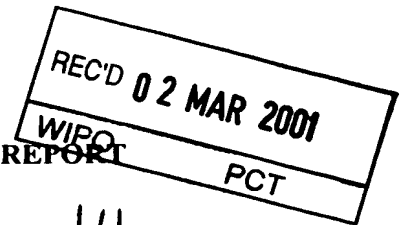
☒ the receiving Office ☐ the designated Offices concerned  
☐ the International Searching Authority ☒ the elected Offices concerned  
☒ the International Preliminary Examining Authority ☐ other:The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

C. Cupello

Facsimile No.: (41-22) 740.14.35

Telephone No.: (41-22) 338.83.38



14

|                                                                                                                     |                                                          |                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Applicant's or agent's file reference<br>PC-2008128                                                                 | <b>FOR FURTHER ACTION</b>                                | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
| International application No.<br>PCT/SE99/01799                                                                     | International filing date (day month year)<br>07.10.1999 | Priority date (day month year)<br>07.10.1998                                                        |
| International Patent Classification (IPC) or national classification and IPC7<br>H04L 12/52, H04L 12/56, H04Q 11/04 |                                                          |                                                                                                     |
| Applicant<br>NET INSIGHT AB et al.                                                                                  |                                                          |                                                                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| These annexes consist of a total of _____ sheets.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 3. This report contains indications relating to the following items:<br><br>I <input checked="" type="checkbox"/> Basis of the report<br>II <input type="checkbox"/> Priority<br>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability<br>IV <input type="checkbox"/> Lack of unity of invention<br>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement<br>VI <input type="checkbox"/> Certain documents cited<br>VII <input type="checkbox"/> Certain defects in the international application<br>VIII <input type="checkbox"/> Certain observations on the international application |

|                                                                                                                                            |                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Date of submission of the demand<br><br>18.04.2000                                                                                         | Date of completion of this report<br><br>23.02.2001                    |
| Name and mailing address of the IPEA/SE<br>Patent- och registreringsverket<br>Box 5055<br>S-102 40 STOCKHOLM<br>Facsimile No. 08-667 72 88 | Authorized officer<br><br>Rickard Elg/LR<br>Telephone No. 08-782 25 00 |

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed
- ☐ the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement) under article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet/fig \_\_\_\_\_

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

|                               |        |             |     |
|-------------------------------|--------|-------------|-----|
| Novelty (N)                   | Claims | <u>1-19</u> | YES |
|                               | Claims |             | NO  |
| Inventive step (IS)           | Claims | <u>1-19</u> | YES |
|                               | Claims |             | NO  |
| Industrial applicability (IA) | Claims | <u>1-19</u> | YES |
|                               | Claims |             | NO  |

**2. Citations and explanations (Rule 70.7)**

## Problem and solution

The invention relates to method and an apparatus for providing routing of asynchronous traffic in a circuit-switched synchronous time division multiplexed network.

When transferring asynchronous traffic through a circuit-switched synchronous time division multiplexed network, such as DTM, a routing mechanism is needed. Current routing solutions are typically developed for use in different types of network architectures. These solutions therefore suggest mechanisms that result in poor use of the features of networks of DTM kind, such as the ability to dynamically establishing, terminating and modify channels. The problem to be solved is therefore to provide a routing solution that makes better use of the advantageous features of a network of DTM kind by providing a mechanism for switching among channels of a multi-channel multi-access bitstream.

The invention presents a routing method in which a data packet form a node connected to a multi-access bitstream carrying isochronous channel is received in an one of said isochronous channels, and where the said channel is used for carrying asynchronous traffic. It is determined if said data packet is to be transmitted to another node connected to said bitstream using another channel of said isochronous channels. If so, the said data packet is transmitted to said another node using said another channel.

.../...

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V

The following documents have been cited in the International Search Report:

D1: WO, 9703526, A2

D2: WO, 9417617, A1

D3: WO, 9414255, A1

D4: WO, 9736403; A1

D5: C. Bohm et al., "The DTM Gigabit Network", Journal of High Speed Networks, vol. 3, 1994, pp. 109-126

Document D1 discloses a telecommunications facility for transporting data packets having headers and payloads between a plurality of input ports and a plurality of output ports.

Document D2 discloses an ATM switch, which may be modified to provide a predetermined delay when transmitting information cells, thereby enabling isochronous traffic.

Document D3 discloses an arrangement where an asynchronous frame is divided into two synchronous frames.

Document D4 discloses a method for transferring data in time slots in at least two parallel bitstreams along a shared optical media.

Document D5 introduces DTM, a circuit-switched synchronous time division multiplexed network.

The invention claimed in claims 1-19 is novel and shows industrial applicability. It appears that none of documents D1-D5, neither explicit nor implicit, addresses routing among channels of a multi-channel multi-access bitstreams. Therefore, it is not considered obvious to a person skilled in the art arriving at invention from any one, or any combination of documents D1-D5. Consequently, the invention claimed in claims 1-19 is considered to involve an inventive step.

The diagram illustrates a system architecture with the following components and connections:

- Input/Output Section (Bottom):** A thick horizontal arrow at the bottom represents a data bus or interface. It has an input line labeled **1** and an output line labeled **13**.
- Processing Units (Top):**
  - 116** and **118** are rectangular blocks on the left and right respectively, connected by a bidirectional arrow.
  - 120** is a rectangular block at the top center.
  - 119** is a rectangular block below **120**.
  - 117** is a rectangular block below **119**.
  - 121** is a rectangular block below **116** and **117**, connected to both by bidirectional arrows.
- Storage and Control (Middle):**
  - 118** is a cylinder representing a database or storage, connected to **119** by a bidirectional arrow.
  - 113** and **114** are rectangular blocks at the bottom, enclosed in a dashed box labeled **111**.
- Data Flows (Arrows):**
  - 2**: From the input **1** to **116**.
  - 3**: From **116** to **120**.
  - 4**: From **120** to **116**.
  - 5**: From **116** to **119**.
  - 6**: From **119** to **117**.
  - 7**: From **118** to **117**.
  - 8**: From **117** to **118**.
  - 9**: From **119** to **118**.
  - 10**: From **118** to **119**.
  - 11**: From **113** to **118**.
  - 12**: From **114** to **118**.
  - 14**: From **118** to **120**.

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Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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| DK | Denmark                  | LR | Liberia                                  | SG | Singapore                                    |    |                          |
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|                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| (51) International Patent Classification 7 :<br>H04L 12/52, 12/56, H04Q 11/04                                                                                                                                                                            |  | A3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (11) International Publication Number:<br>WO 00/21256            |
|                                                                                                                                                                                                                                                          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | (43) International Publication Date:<br>13 April 2000 (13.04.00) |
| (21) International Application Number:<br>PCT/SE99/01799                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (22) International Filing Date:<br>7 October 1999 (07.10.99)                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (30) Priority Data:<br>9803418-4 7 October 1998 (07.10.98) SE                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (71) Applicant (for all designated States except US): NET INSIGHT AB [SE/SE]; P.O. Box 42093, S-126 14 Stockholm (SE).                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (72) Inventors; and                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (75) Inventors/Applicants (for US only): LINDGREN, Per [SE/SE]; Maria Prästgårdsgata 12, S-118 52 Stockholm (SE). BOHM, Christer [SE/SE]; Varpholmsgränd 32, S-127 46 Skärholmen (SE). OLSSON, Bengt, J. [SE/SE]; Rådjursvägen 303, S-147 34 Tumba (SE). |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
| (74) Agent: AWAPATENT AB; P.O. Box 45086, S-104 30 Stockholm (SE).                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |
|                                                                                                                                                                                                                                                          |  | (81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), DM, EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). |                                                                  |
|                                                                                                                                                                                                                                                          |  | Published<br>With international search report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                  |
|                                                                                                                                                                                                                                                          |  | (88) Date of publication of the international search report:<br>13 July 2000 (13.07.00)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                  |

**(57) Abstract**

A block diagram illustrating a system architecture. At the bottom, a thick horizontal line with an arrow pointing right is labeled 'R'. A vertical line labeled '1' extends upwards from 'R' and splits into two paths. The left path leads to a dashed rectangular box labeled '111'. Inside this box are two smaller rectangular blocks labeled '113' and '114'. The right path from '1' leads to a block labeled '115'. A block labeled '121' is positioned between '115' and another block labeled '116'. A block labeled '117' is located above '121'. A block labeled '119' is above '117'. A cylinder labeled '118' is to the left of '119'. A block labeled '120' is at the top center. A block labeled '14' is at the top right. Various numbered arrows indicate data flow: '2' from '115' to '113'; '3' from '115' to '120'; '4' from '120' to '115'; '5' from '119' to '118'; '6' from '117' to '115'; '7' from '118' to '117'; '8' from '117' to '116'; '9' from '14' to '119'; '10' from '14' to '119'; '11' from '116' to '119'; '12' from '116' to '119'; '13' from '114' to 'R'.



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| EE | Estonia                  | LR | Liberia                                  | SG | Singapore                                    |    |                          |

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01799

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/52, H04L 12/56, H04Q 11/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04L, H04Q, H04J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                      | Relevant to claim No. |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A         | WO 9703526 A2 (NORTHERN TELECOM LIMITED),<br>30 January 1997 (30.01.97), page 10,<br>line 11 - page 15, line 14, claims 1-25<br>--      | 1-19                  |
| A         | WO 9417617 A1 (TELEFONAKTIEBOLAGET LM ERICSSON),<br>4 August 1994 (04.08.94), page 30,<br>line 22 - page 32, line 10, claims 1-40<br>-- | 1-19                  |
| A         | WO 9414255 A1 (TELIA AB), 23 June 1994 (23.06.94),<br>page 18, line 6 - line 20, figure 10, claims 1-20<br>--                           | 1-19                  |
| A         | WO 9736403 A1 (NET INSIGHT AB), 2 October 1997<br>(02.10.97), page 9, line 29 - page 13, line 6<br>--                                   | 1-19                  |

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

6 April 2000

Date of mailing of the international search report

13-04-2000

Name and mailing address of the ISA/

Swedish Patent Office

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Facsimile No. +46 8 666 02 86

Authorized officer

Erik Johannesson/CL

Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01799

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                    | Relevant to claim No. |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A         | <p>Journal of High Speed Networks, Volume 3, 1994,<br/>Christer Bohm et al, "The DTM Gigabit Network,<br/>Journal of High Speed Networks"<br/>page 109 - page 126</p> <p style="text-align: center;">--<br/>-----</p> | 1-19                  |

INTERNATIONAL SEARCH REPORT  
Information on patent family members

02/12/99

International application No.  
PCT/SE 99/01799

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)                                                                                                                                                                                | Publication<br>date                                                                                                                                      |
|-------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| WO 9703526 A2                             | 30/01/97            | CA 2225333 A<br>CN 1194073 A<br>EP 0838110 A<br>US 5841771 A<br>US 5862136 A                                                                                                                              | 30/01/97<br>23/09/98<br>29/04/98<br>24/11/98<br>19/01/99                                                                                                 |
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